

NASA Advisory Council
National Aeronautics and Space Administration
Washington, DC 20546

Dr. Steven W. Squyres, Chair

December 18, 2013

Mr. Charles F. Bolden, Jr.
Administrator
National Aeronautics and Space Administration
Washington, DC 20546

Dear Administrator Bolden:

The NASA Advisory Council held a very productive public meeting at NASA's Kennedy Space Center, Florida, December 11-12, 2013.

As a result of its deliberations, the Council approved three recommendations and four findings. They are enclosed for your consideration. If you have any questions or wish to discuss further, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'S. Squyres', with a long horizontal line extending to the right.

Steven W. Squyres
Chairman

Enclosures

NASA Advisory Council Recommendation

Impact of Travel Restrictions on Science and Technology 2013-03-01 (SC-01)

Name of Committee: Science Committee

Chair of Committee: Dr. David McComas *(presented by Dr. Eugene Levy)*

Date of Council Public Deliberation: December 11, 2013

Short Title of Recommendation: Impact of Travel Restrictions on Science and Technology:

Recommendation: The Council recommends that the NASA leadership reconsider the interpretation of external guidance on travel restrictions for scientific and technology meetings, conferences and working groups to allow the optimal participation of the scientific and technology community, including NASA employees and contractors, to enhance productivity within the existing highly constrained financial resources.

Major Reasons for Proposing the Recommendation: Under the current interpretation, travel under NASA contracts, grants, or as NASA employees and contractors has been limited in a way that is highly inefficient and counterproductive for NASA's science and technology endeavors. This is compounded by the additional burden of new justification, documentation, tracking and management requirements and their associated costs.

Regular and open communication between scientists and technologists is essential for healthy and productive research. Although electronic and virtual means of communication play an increasing role in interacting with colleagues and can accommodate much routine project activity, they cannot replace face-to-face interactions. Specific examples include the much valued give-and-take of vibrant (sometimes heated) discussions, insight derived from multiple ideas being discussed spontaneously, informal (often unplanned) interactions and brainstorming that occurs before or after a presentation. These person-to-person contacts are extremely cost-effective and are key components in productive scientific interactions.

Consequences of No Action on the Proposed Recommendation: NASA will spend more money while achieving less in science and technology by running the program in a way that is inefficient for discovery and progress.

NASA Advisory Council Recommendation

Education and Public Outreach Funding for NASA Science Mission Directorate 2013-03-02 (SC-02)

Name of Committee: Science Committee

Chair of Committee: Dr. David McComas *(presented by Dr. Eugene Levy)*

Date of Council Public Deliberation: December 11, 2013

Short Title of Recommendation: Education and Public Outreach Funding
for NASA Science Mission Directorate

Recommendation: The Council recommends that NASA restore the original Education and Public Outreach funding to all NASA Science Mission Directorate (SMD) programs.

Major Reasons for Proposing the Recommendation: SMD's Education and Public Outreach (EPO) efforts have been critical to the national interest and have proved to be effective in communicating science and inspiring and educating the public. The EPO funding situation remains ambiguous. Budgetary authority was removed from all of the NASA EPO programs, but because of the Continuing Resolution, SMD was able to authorize a small fraction of its EPO programs to continue. Restoration by NASA across all SMD EPO programs is needed to fulfill NASA's vibrant and highly effective mission of education and public outreach.

Consequences of No Action on the Proposed Recommendation: The nation is already losing a critical and inspirational opportunity for involving our citizens in science. NASA has previously trained a capable EPO workforce directly involved in NASA's missions that is already being lost. This incredible capability, developed over more than a decade, will disappear in a much shorter amount of time.

NASA Advisory Council Recommendation

Reporting Line of the Planetary Protection Office 2013-03-03 (SC-03)

Name of Committee: Science Committee

Chair of Committee: Dr. David McComas *(presented by Dr. Eugene Levy)*

Date of Council Public Deliberation: December 11, 2013

Short Title of Recommendation: Reporting Line of the Planetary Protection Office

Recommendation: The Council recommends that the Planetary Protection Office (PPO) be moved so as to be out of any Mission Directorate and located with a reporting line that assures the PPO's independence and freedom from conflict of interest.

Major Reasons for Proposing the Recommendation: The Mars Science Laboratory (MSL) Lessons-Learned Report specifically recommended reconsideration of “*the current organizational arrangement for the PPO to ensure that Planetary Protection is fully independent of any operational division. In addition the PPO role should be re-examined in light of PPO's expanding role, to include human exploration and cross-mission trades for sample return.*”

While Planetary Protection is strongly rooted in science, the Planetary Protection function entails broader responsibilities, including responsibilities of a regulatory nature and involving compliance with international treaties and agreements to which NASA is a party. Furthermore, the Space Studies Board, long anticipating the MSL Lessons-Learned Report, has previously advised NASA that it must ensure the integrity and independence of the Planetary Protection Office and advisory bodies as separate from the science side of the Agency [National Research Council (NRC) 1992, 1997, 2002].

The definition and implementation of Planetary Protection, while requiring continuation of its essential roots in science, is also of significance to the technical engineering aspects of missions. A primary reporting relationship between the PPO and the Offices of the Chief Scientist and Chief Engineer, for example, could provide an effective independent structure for working with the Science Mission Directorate and the mission projects to ensure balance, effectiveness, and cost-effectiveness in the application of Planetary Protection measures. Furthermore, while the primary responsibility for defining standards for life-detecting experiments would still reside with science investigators and SMD, placing the PPO reporting line outside of SMD would provide an effective independent framework for evaluating the implications of the results of life-detecting experiments, for Planetary Protection as applied to subsequent missions.

- NRC 1992, Biological Contamination of Mars: Issues and Recommendations, National Academy Press
- NRC 1997, Mars Sample Return: Issues and Recommendations, National Academy Press
- NRC 2002, Quarantine and Certification of Martian Samples, National Academy Press

Consequences of No Action on the Proposed Recommendation: The conflicts of interest – real and perceived – between Planetary Protection and the science and exploration programs, and the lack of independence, can dilute the force and credibility of NASA's Planetary Protection implementation, thus reducing the effectiveness and cost effectiveness with which Planetary Protection is incorporated into missions, and potentially undermining public confidence.

NASA Advisory Council Finding

NASA Langley Research Center Strategic Approach

Name of Committee:	Aeronautics Committee
Chair of Committee:	Ms. Marion Blakey <i>(presented by Mr. John Borghese, Vice Chair)</i>
Date of Council Public Deliberation:	December 12, 2013
Short Title of Finding:	NASA Langley Research Center Strategic Approach

Finding: The Council endorses the approach that NASA Langley Research Center (LaRC) has taken toward establishing a strategic effort to inform future facility and workforce decisions. The Council feels that the underlying process of utilizing strategic partnerships and community/stakeholder engagement has enabled the Aeronautics Research Mission Directorate and LaRC to efficiently manage facilities and more effectively plan for future research needs.

NASA Advisory Council Finding

Aeronautics Research Mission Directorate Continued Investment in Rotary Wing Research

Name of Committee: Aeronautics Committee

Chair of Committee: Ms. Marion Blakey *(presented by Mr. John Borghese, Vice Chair)*

Date of Council Public Deliberation: December 12, 2013

Short Title of Finding: Aeronautics Research Mission Directorate
Continued Investment in Rotary Wing Research

Finding: The Council supports the NASA Aeronautics Research Mission Directorate (ARMD) continued investment in Rotary Wing research and encourages maintaining research efforts that provide advancements in dual use (civilian and military) capabilities. The Council finds that it is a great strength of the research to invest in technologies that provide benefit primarily to civil aviation, but also serve to advance military capabilities. The Council encourages ARMD to maintain those partnerships with the Department of Defense that will foster the development of those technologies, and enable NASA to hasten the civil use of technologies developed primarily for military rotorcraft. In addition, rotorcraft research is a logical place in which to make advances in NASA's autonomy agenda/initiative.

NASA Advisory Council Finding

Space Technology Mission Directorate Technologies for Asteroid Retrieval Mission

Name of Committee:	Technology and Innovation Committee
Chair of Committee:	Dr. William Ballhaus
Date of Council Public Deliberation:	December 12, 2013
Short Title of Finding:	Space Technology Mission Directorate Technologies for Asteroid Retrieval Mission

Finding: Technologies under development by the NASA Space Technology Mission Directorate have proven critical to the recently-defined Asteroid Retrieval Mission.

NASA Advisory Council Finding

Updating NASA Technology Roadmaps and Strategic Technology Investment Plan

Name of Committee:	Technology and Innovation Committee
Chair of Committee:	Dr. William Ballhaus
Date of Council Public Deliberation:	December 12, 2013
Short Title of Finding:	Updating NASA Technology Roadmaps and Strategic Technology Investment Plan

Finding: The Council is pleased that the process for updating the NASA Technology Roadmaps and Strategic Technology Investment Plan now appears to be an established process with appropriate cadence for periodic updates.